

Study Guide

For use with pages 90–95

GOAL Solve equations using addition or subtraction.**VOCABULARY****Inverse operations** are two operations that undo each other, such as addition and subtraction.**Equivalent equations** are equations that have the same solution(s).**EXAMPLE 1** Solving an Equation Using SubtractionSolve $m + 12 = 7$.

$$m + 12 = 7$$

Write original equation.

$$m + 12 - 12 = 7 - 12$$

Subtract 12 from each side.

$$m = -5$$

Simplify.

Answer: The solution is -5 .

✓ Check $m + 12 = 7$

Write original equation.

$$-5 + 12 \stackrel{?}{=} 7$$

Substitute -5 for m .

$$7 = 7 \quad \checkmark$$

Solution checks.

EXAMPLE 2 Solving an Equation Using AdditionSolve $-2 = x - 9$.

$$-2 = x - 9$$

Write original equation.

$$-2 + 9 = x - 9 + 9$$

Add 9 to each side.

$$7 = x$$

Simplify.

Answer: The solution is 7.**Exercises for Examples 1 and 2**

Solve the equation. Check your solution.

1. $7 + k = 42$

2. $21 = y + 14$

3. $m + 9 = 13$

4. $3 + n = -7$

5. $j + 13 = -2$

6. $-1 = x + 5$

7. $f - 11 = 2$

8. $y - 12 = -8$

9. $z - 5 = -7$

10. $x - 1 = 0$

11. $k - 2 = -15$

12. $j - 17 = 13$

LESSON

2.5

Continued

Name _____ Date _____

Study Guide

For use with pages 90–95

EXAMPLE 3 Writing and Solving an Equation

You are traveling to Louisville, Kentucky. You have already traveled 122 miles, and you just passed a road sign that said Louisville is 76 miles away. How far is Louisville from the start of your trip?

Solution

Let d represent the distance from the start of your trip to Louisville. Write a verbal model. Then use the verbal model to write an equation.

Distance from the
start to Louisville

–

Distance
traveled

=

Remaining
distance

$$d - 122 = 76$$

Substitute.

$$d - 122 + 122 = 76 + 122$$

Add 122 to each side.

$$d = 198$$

Simplify.

Answer: Louisville is 198 miles from the start of your trip.

Exercises for Example 3

13. You have \$37 left after shopping. You started with \$85. How much money did you spend?
14. You are in a 50-kilometer bike race. You have to bike 21 kilometers until you reach the finish line. How far have you already biked?